

PATENT  
514413-3852

### REMARKS

Pursuant to 37 C.F.R. 1.17(a) and 1.136(a), a three month extension of time, i.e. up to and including May 6, 2002, is respectfully requested. Enclosed herewith is a check for \$920.00 in payment of the fee thereof. Any deficiency or overpayment in this fee, or any other charge occasioned by this paper, or any overpayment in any fee occasioned by this paper may be charged or credited to Deposit Account No. 50-0320.

The invention relates to the technical field of the chemical synthesis of bioactive compounds, preferably the process used for the preparation of crop protection agents and intermediates for these processes.

Claims 1-10 have been rejected under 35 U.S.C. §112, second paragraph, for reasons as set forth at pages 2-3 (paragraphs 1-3) of the Official Action.

Specifically, claim 1 has been criticized as indefinite for certain formal reasons. In response, Applicants have amended claim 1 to correct the plural/singular discrepancy, and also to correct the punctuation at the penultimate line of the claim.

Additionally, Applicants have amended the claim 1 language "equally substituted", to recite language which Applicants believe clarifies the gist of Applicants' invention. Specifically, it is now clear that the disulfide of formula II defined should have an equal substitution at the triazine rings because the chlorination will react twice and produce two molecules of the compound of formula I, from one molecule of the compounds of formula II.

Claim 7 has also been criticized and in response, Applicants have amended it as suggested by the Examiner.

Claim 10 has also been criticized and again, Applicants have amended claim 10 to utilize clarifying language.

Applicants submit that the claims are now in good form and that any rejection under 35 U.S.C. §112, second paragraph, has been overcome and should be reconsidered and withdrawn.

Claims 1-10 are rejected under 35 U.S.C. § 103(a) as unpatentable over Giencke et al. (WO 97/08156) or Lorenz et al. (U.S. Patent No. 6,069,114), in view of Chakrabarti et al, Tetrahedron, 31(16)1879-18882, 1975.

While the Examiner acknowledges that Giencke does not teach an example for making 2-chloro-triazine using Applicant's chlorination process and reaction, and while he also notes that Lorenz et al., (the second primary reference,) likewise does not teach an example of making the intermediate 2-chloro-triazine using Applicants' chlorination process, the Examiner maintains that both Giencke and Lorenz rely on the secondary reference Chakrabarti for experimental support. The Examiner maintains that Chakrabarti, the secondary reference, provides sufficient experimental support for the chlorination process.

The Examiner further argues that the comparative data provided on page 17 of the application cannot obviate the obviousness rejection as, in his view, it is an "improper comparison". He maintains that the yields of the comparative and the instant examples are not comparable.

Applicants submit that the rejection of claims 1-10 under 35 U.S.C. §103 is unwarranted and should be reconsidered and withdrawn.

Applicants submit that the invention is in recognition and demonstration that an efficient chlorination is possible by the selection/adaption of reaction parameters. Contrary to the reaction time, the parameters are the solvent and temperature conditions as set forth in the examples. Applicants submit that this is a significant advantage which one of skill in the art

would not have recognized from the teachings of the references, either alone or in any fair combination.

While Applicants take the position that no *prima facie* case of obviousness exists, Applicants submit that the comparative data of record, which is set forth at pages 15-17 of the specification is more than sufficient to overcome any such case. Even if a *prima facie* case is found, Applicants submit that the criticism of the data of record overcomes it, and that any criticism of the data should be reconsidered and withdrawn.

The broader exploitation of the chlorination of thio-aminotriazine derivatives, now taught by Applicants, is a significant and unexpected advantage over what one might have expected from the teachings of the references.

Specifically, the low yield obtained by transfer of the conditions used in the Chakrabarti reference to the chlorination of the methylthio-aminotriazine compound (II) was desperately low (see results reported at page 17 of the specification, Example (f), where a minimal yield of only 10% is reported). This must be contrasted with the reaction yields of 60 to 80% for the instant invention reported at Examples (a) through (e).

It is submitted that in view of these results, one of skill in the art would not have expected the instant reaction to provide such a significantly improved yields, by the the change in the reaction conditions. On this point, and in response to the criticism of the data raised in the Office action, Applicants submit that the low yield reported for the known process is **not** due to a short reaction time. Chlorination was stopped after the starting material had reacted. A prolongation/variation of the reaction time would not have had an opportunity to improve the yield.

Therefore, Applicants urge that the data if record is more than sufficient to overcome any possible *prima facie* case of obviousness, and any criticism of the data should be reconsidered and withdrawn.

Applicants submit that the rejection under 35 U.S.C. §103(a) is therefore unwarranted and should reconsidered and withdrawn.

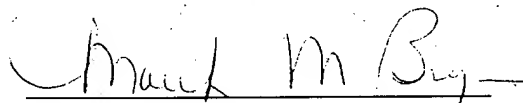
Applicants urge that instant application is now in condition for allowance, the early notification of which is respectfully solicited.

Applicants take this opportunity to thank the Examiner for acknowledgement of receipt of Applicants' claim for priority under 35 U.S.C. Section 119, and for confirming receipt of the priority documents.

Respectfully submitted,

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Attorneys for Applicants

By:



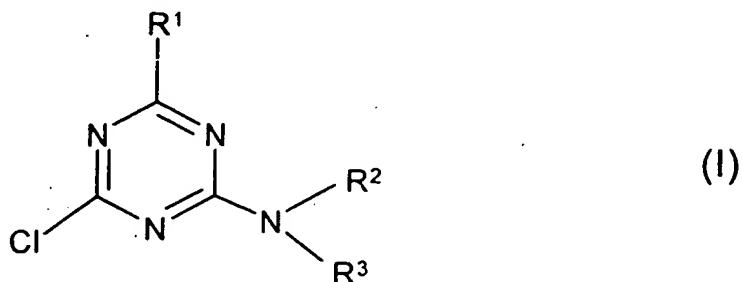
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**APPENDIX: MARKED UP VERSION TO SHOW CHANGES MADE**

1. (Amended) A process for the preparation of compounds of the formula (I) or salts

thereof



in which

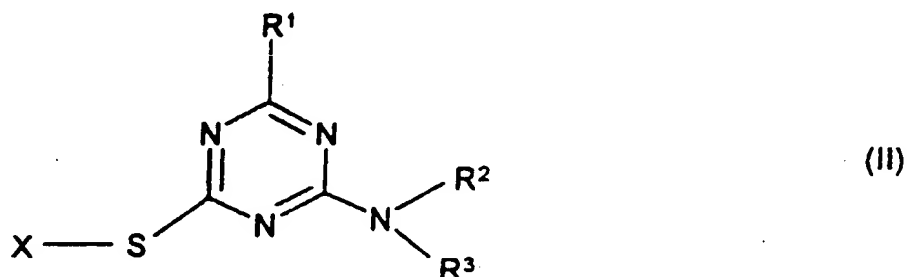
$R^1$  is  $(C_1-C_8)$ alkyl or  $(C_3-C_8)$ cycloalkyl, where each of the two above radicals independently of one another is unsubstituted,

and

$R_2, R_3$  in each case independently of one another are hydrogen, amino, hydroxyl, formyl or unsubstituted  $(C_1-C_8)$ alkyl,  $(C_1-C_8)$ alkylamino, di $[(C_1-C_8)$ alkyl]amino,  $(C_1-C_8)$ alkyloxy, aryl, aryloxy,  $(C_3-C_8)$ cycloalkyl,  $[(C_1-C_8)$ alkyl]carbonyl,  $[(C_1-C_8)$ alkoxy]-carbonyl, arylcarbonyl, aryloxycarbonyl,  $(C_1-C_8)$ alkylsulfonyl, arylsulfonyl or an unsubstituted or substituted heterocyclyl radical, heterocyclyloxy radical, heterocyclyamino radical, each of which has 3 to 6 ring atoms and 1 to 3 hetero ring atoms selected from the group consisting of N, O and S, or

$R^2, R^3$  together with the nitrogen from the group  $NR^2R^3$  are a heterocyclic radical having 3 to 6 ring atoms and 1 to 4 hetero ring atoms, where, in addition to the

nitrogen atom, the other hetero ring atoms which may exist are selected from the group consisting of N, O and S and the heterocycle is unsubstituted or substituted, which comprises converting 2-amino-4-thio-1,3,5-triazines of the general formula (II)



in which X represents hydrogen, (C<sub>1</sub>-C<sub>6</sub>)alkenyl, (C<sub>2</sub>-C<sub>6</sub>)alkynyl or phenyl, where each of the last mentioned 4 radicals is unsubstituted or substituted, or represents a 2-amino-4-thio-1,3,5-triazine radical which is bonded via sulfur and equally substituted compared to the other triazine ring in the compound of formula I,

by chlorination into the [compound] compounds (I).

7. (Twice Amended) The process as claimed in [claim 1] claim 6 which is carried out at temperatures between -40°C and the boiling point of the solvent or mixtures of solvents employed [in question].

10. (Amended) The process as claimed in claim 9, wherein A is a (C<sub>1</sub>-C<sub>6</sub>)alkylene chain which is substituted in the α-position relative to the amino group by an unsubstituted or substituted alkyl radical and in the ω-position by an optionally substituted aryl, heteroaryl, aryloxy or heteroaryloxy radical and which is further unsubstituted or [additionally contains further] substituted further with substituents selected from the group consisting of halogen, alkyl, alkoxy and hydroxyl, and  
R is hydrogen or alkyl.